each said CDM transmission channel comprising a phase modulator and an optical delay line interconnected therebetween, said optical delay line comprising a temperature sensitive component for stabilization of phase drift caused by environmental fluctuations;

wherein said broadband source has a discrete spectrum with equally spaced individual spectral lines, a spectral spacing between said spectral lines exceeding an electrical detection of bandwidth of transmitted CDM optical signals; and

wherein said optical delay lines provide time delays according to the relation: $t_1 = mkt_c$, $t_2 = (m+1)kt_c \ldots$, $t_n = (2m-1)kt_c$, where m is the number of CDM transmission channels, t_c is a coherence time of the broadband source, and k is a numerical factor.

REMARKS

The Applicant acknowledges, with thanks, receipt of the Office Action mailed Feburary 22, 2002.

The action by the Examiner of this application, together with the cited references, have been given careful consideration. By this amendment, claims 1-4, 6-11, 13-17, and 22-34 have been cancelled without prejudice or disclaimer. Applicant reserves the write to file a continuation application at a later date to further prosecute these claims. Claims 5, 12, and 18-21 are now pending. In the last Office Action, claims 5 and 18-21 were considered allowable, but objected to as being dependent upon a rejected base claim and would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim. By this amendment, claim 5 has been rewritten in independent form and amended to include the limitations of the base claim (claim 1) and all intervening claims (claims 2 and 4). Claim 12 has been amended to depend from claim 5 and should now be in condition for allowance. Finally, claim 18 has been amended to include the limitations of the base claim (claim 14) and all intervening claims (claim 15). Claims 19-21 depend from claim 18. Thus, the only claims now pending in this application are those claims that in the last Office Action were in condition for allowance, and these claims have been amended to overcome the Examiner's objections.

In the last Office Action, the drawings were objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims. Claims 8-10 which incorporated

the limitations giving rise to this objection have been cancelled, thus Applicant would request that the objection be withdrawn.

In view of the foregoing, it is respectfully submitted that the present application is now in proper condition for allowance. If the Examiner believes there are any further matters which need to be discussed in order to expedite the prosecution of the present application, the Examiner is invited to contact the undersigned.

If there are any fees necessitated by the foregoing communication, please charge such fees to our Deposit Account No. 50-0902, referencing our Docket No. (77772/23372).

Respectfully submitted,

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_____

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CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

I hereby certify that this correspondence (along with any paper referenced as being attached or enclosed) is being deposited on the below date with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Box _____, Assistant Commissioner for Patents, Washington, D.C. 20231.

Date:_____

_____
Name:

VERSION WITH MARKINGS TO SHOW CHANGES MADE

5. (Amended) A[The] multichannel optical communication system [of claim 4,] for transmitting optical signals via an optical fiber comprising:

a plurality of individual WDM transmission channels;

a CDM transmission unit disposed within at least one individual WDM transmission channel of said plurality,

said CDM transmission unit comprising one or more CDM transmission channels;

a number of individual WDM transmission channels of said plurality, each transmitting a WDM optical signal on a unique wavelength within a designated bandwidth; and

said CDM transmission unit transmitting CDM optical signals within said designated bandwidth of said at least one individual WDM transmission channel

a number of single frequency optical sources, each generating light within each individual WDM transmission channel transmitting said WDM optical signal, and a broadband optical source for generating light within said at least one WDM transmission channel transmitting said CDM optical signals;

wherein said broadband optical source has a discrete spectrum with equally spaced individual spectral lines, a spectral spacing between said spectral lines exceeding an electrical detection bandwidth of transmitted CDM optical signals; and

wherein said broadband optical source is a multimode laser comprising:

a lasing medium;

an optical filter for defining said designated bandwidth having a center wavelength at the center of said at least one individual WDM transmission channel; and

an optical cavity having length $L = c/2f_0$ where c is the speed of light, f_0 is said spectral spacing between adjacent spectral modes of said broadband optical source.

12. (Amended) The multichannel optical communication system of claim [2]5 further comprising:

a WDM multiplexer for multiplexing optical outputs of said individual WDM transmission channels for transmitting said WDM optical signals and one or more CDM transmission channels for transmitting said CDM optical signals;

at least one optical fiber link for transmitting said multiplexed optical outputs therethrough;

a WDM demultiplexer for demultiplexing said optical outputs into said individual WDM transmission channels and one or more CDM transmission channels;

a plurality of WDM receivers for receiving and detecting optical outputs from corresponding said WDM transmission channels; and

one or more CDM receivers for receiving and detecting optical outputs from corresponding one or more said CDM transmission channels.

18. (Amended) A[The] multichannel optical fiber communication system [of claim 15,] for transmitting CDM optical signals via at least one WDM transmission channel comprising:

a first plurality of individual WDM transmission channels for transmitting WDM optical signals and at least one individual WDM transmission channel for transmitting said CDM optical signals,

each individual WDM transmission channel of said plurality comprising a single frequency optical source for generating light within said each WDM transmission channel for transmitting an optical signal on a unique wavelength within a designated range of wavelengths; and

at least one coherence division multiplexed (CDM) transmission unit disposed within said at least one individual WDM transmission channel, said at least one CDM unit comprising:

a second plurality of CDM transmission channels,

a broadband optical source for generating light within said at least one WDM transmission channel for transmitting said CDM optical signals via said second plurality of CDM transmission channels,

a light splitter for dividing said light generated by said broadband optical source into one reference path and a number of optical paths equal to a number of CDM transmission channels,

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each said CDM transmission channel comprising a phase modulator and an optical delay line interconnected therebetween, said optical delay line comprising a temperature sensitive component for stabilization of phase drift caused by environmental fluctuations;

wherein said broadband source has a discrete spectrum with equally spaced individual spectral lines, a spectral spacing between said spectral lines exceeding an electrical detection of bandwidth of transmitted CDM optical signals; and

wherein said optical delay lines provide time delays according to the relation: $t_1 = mkt_c$, $t_2 = (m+1)kt_c \ldots$, $t_n = (2m-1)kt_c$, where m is the number of CDM transmission channels, t_c is a coherence time of the broadband source, and k is a numerical factor.